DataVal, Inc.

MEMORANDUM

TO: Carl Brickner
Environmental Scientist
USEPA Region 9 Quality Assurance Office (PMD-3)

FROM: Donna Breaux DB 10/2/06
Senior Reviewer, DataVal, Inc.

DATE: October 2, 2006

SUBJECT: Review of Analytical Data

Attached are comments resulting from DataVal's review of the following analytical data:

SITE:	Omega Chemical OU-2 March 2006 Sampling
SITE ACCOUNT NO.:	09 BC LA 02
CERCLIS I.D. NO.:	CAD042245001
CASE NO.:	R06S31
SDG NO.:	06075B
LABORATORY:	Region 9 Laboratory, Richmond, CA
ANALYSES:	Perchlorate (314.0)
SAMPLE NO.:	5 Water Samples (See Case Summary)
COLLECTION DATES:	March 15, 2006
REVIEWERS:	Lisa Norosky/Agnieszka Jankowski, DataVal, Inc.

If there are any questions, please contact Donna Breaux at (415) 883-2780.

Attachment

TPO: [ ]FYI [ ]Attention [ ]Action

SAMPLING ISSUES: [ ] Yes [X] No

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DataVal, Inc.

Data Validation Report

Case No.: R06S31
Site: Omega Chemical OU-2 March 2006 Sampling
Laboratory: Region 9 Laboratory, Richmond, CA
Reviewer: Lisa Norosky/Agnieszka Jankowski, DataVal, Inc.
Date: October 2, 2006

I. Case Summary

SAMPLE INFORMATION:

Concentration and Matrix: Low Concentration Waters
Analysis: Perchlorate (314.0)
SOW: N/A

Samples in SDG 06075B: OC2-MW23D-W-5-196, OC2-MW15-W-0-198, OC2-MW15-W-1-199, OC2-MW13B-W-0-201 and OC2-MW12-W-0-203
Collection Dates: March 15, 2006
Sample Receipt Dates: March 16, 2006

FIELD QC: Field Blanks (FB): None.
Equipment Blanks (EB): None.
Background Samples (BG): None.
Duplicates (D1): OC2-MW15-W-0-198 and OC2-MW15-W-1-199

LABORATORY QC: Matrix Spikes: OC2-MW23D-W-5-196

ANALYSES: Perchlorate (314.0)

Analyte	Sample Preparation Dates	Analysis Dates
Perchlorate	March 28 and 29, 2006	March 28 and 29, 2006

METHOD BLANKS AND ASSOCIATED SAMPLES:

Perchlorate:
B6C0170-BLK1: OC2-MW23D-W-5-196, OC2-MW15-W-0-198, OC2-MW15-W-1-199 and OC2-MW13B-W-0-201
B6C0187-BLK1: OC2-MW12-W-0-203

TABLES:

1A: Analytical Results with Qualifications
1B: Data Qualifier Definitions for Inorganic Data

TPO ACTION: None.

TPO ATTENTION: None.

SAMPLING ISSUES:
None.

ADDITIONAL COMMENTS:
In addition to the laboratory SOPs, this report was prepared according to the following documents:

- *Methods for the Determination of Organic and Inorganic Compounds in Drinking Water* (EPA 815-R-00-014, August 2000)

- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004.

All samples in sample delivery group (SDG) 06075B received full validation. This included re-calculation of all reported results for perchlorate in the samples included in this SDG. All reported values for all samples were verified as correctly reported by the laboratory.

II. Validation Summary

The data were evaluated based on the following parameters:

Parameter		Acceptable	Comment
1.	Data Completeness	Yes	
2.	Sample Preservation and Holding Times	Yes	
3.	Calibration	Yes	
	a. Initial Calibration Verification		
	b. Continuing Calibration Verification		
	c. Calibration Blank		
	d. QL Standard		
4.	Blanks	Yes	
	a. Laboratory Preparation Blank		
	b. Field Blank		
	c. Equipment Blank		
5.	ICP Interference Check Sample Analysis	N/A	
6.	Laboratory Control Sample Analysis	Yes	
7.	Spiked Sample Analysis	Yes	
8.	Laboratory Duplicate Sample Analysis	N/A	
9.	Field Duplicate Sample Analysis	Yes	
10.	GFAA QC Analysis	N/A	
	a. Duplicate Injections		
	b. Analytical Spikes		
	c. Method of Standard Addition		
11.	ICP Serial Dilution Analysis	N/A	
12.	Sample Quantitation	Yes	
13.	Sample Result Verification	Yes	

N/A = Not Applicable

III. Overall Assessment of Data

All of the method requirements specified in laboratory standard operating procedure #531 have been met. The reported results for perchlorate in the samples were re-calculated and verified as correctly reported by the laboratory.

ANALYTICAL RESULTS
TABLE 1A

Case Number: R06S31
Site: Omega Chemical OU-2 March 2006 Sampling
SDG: 06075B
Lab: USEPA Region 9 Laboratory
Reviewer: Lisa Norosky, DataVal, Inc.
Date: 2-Oct-06

Analysis: Perchlorate
Matrix: Water

Station Location	OC2-MW23D-W-5-196				FD1				FD1				OC2-MW13B-W-0-201			
Sample ID	OC2-MW23D-W-5-196				OC2-MW15-W-0-198				OC2-MW15-W-1-199				OC2-MW13B-W-0-201			
Lab Sample ID	0603049-01				0603049-03				0603049-04				0603049-06			
Date of Collection	15-Mar-06				15-Mar-06				15-Mar-06				15-Mar-06			
Units	ug/L				ug/L				ug/L				ug/L			
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com
Perchlorate	3.8				3.9				4.2				3.2			

Station Location	OC2-MW12-W-0-203				Method				Method				
Sample ID	OC2-MW12-W-0-203				Blank				Blank				
Lab Sample ID	0603049-08				B6C0170-BLK1				B6C0187-BLK1				QL
Date of Collection	15-Mar-06				27-Mar-06				29-Mar-06				
Units	ug/L				ug/L				ug/L				ug/L
Analyte	Result	Q	Val	Com	Result	Q	Val	Com	Result	Q	Val	Com	Result
Perchlorate	2.0	U			2.0	U			2.0	U			2.0

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
N/A-Not Applicable, NA-Not Analyzed

FD1, FD2, etc.- Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Blank
BG-Background Sample

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the document "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004".

U The analyte was analyzed for, but was not detected above the level of the reported value. The reported value is either the sample quantitation limit or the sample detection limit for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Quantitation Limit (QL).

L Indicates results which fall between the sample detection limit and the QL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The associated value is an estimated quantity. The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample.

R The data are unusable. The analyte was analyzed for, but the presence or absence of the analyte can not be verified.

UJ A combination of the "U" and the "J" qualifier. The analyte was analyzed for but was not detected. The reported value is an estimate and may be inaccurate or imprecise.

Data Validation Worksheet
Perchlorate

Project Name: Omega Chemical OU2
Project Number: R06S31
Laboratory Name: USEPA Region 9 Laboratory, Richmond, CA

Performed by/Date: EJN 5-31-06
Reviewed by/Date: APJ 6-23-06

Analysis	Method Number
Perchlorate	314.0

Qualified Data? NO__X__ YES____, see page(s)____

SDG Number	Date Sampled	#Samples/Matrix	Validation Level
06075B	15-Mar-06	5 Waters	IV

Data review was performed using the following documents as guidelines (check all that are applicable):

[X] USEPA CLP National Functional Guidelines for Inorganic Data Review (NFG Ing.), October 2004
[ ] Project guidance document(s):
[X] Analysis method(s) **EPA Region 9 Lab SOP 531R3**

[ ] **Validated using QuikVal** (See attached QuikVal sheets for Holding Time, LCS and MS/MSD evaluation)

ITEMS CHECKED - LEVEL III (Where Applicable)
Sample Receiving
Electronic Data Deliverables
Case Narrative
Holding Times
Instrument Run Logs
Initial Instrument Calibration
Continuing Instrument Calibration
Method Blanks
Laboratory Control Samples

ITEMS CHECKED - LEVEL III continued (Where Applicable)
Matrix Spikes/Matrix Spike Duplicates
Laboratory Duplicates
Field Duplicates
Field QC Blanks
Reporting Limits

ITEMS CHECKED - LEVEL IV (Where Applicable)
Sample Receiving
Electronic Data Deliverables
Case Narrative
Holding Times
Instrument Run Logs
Initial Instrument Calibration
Continuing Instrument Calibration
Method Blanks
Laboratory Control Samples

ITEMS CHECKED - LEVEL IV continued (Where Applicable)
Matrix Spikes/Matrix Spike Duplicates
Laboratory Duplicates
Field Duplicates
Field QC Blanks
Reporting Limits
Raw Data
Re-calculation of reported results
Method Detection Limits

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SAMPLE RECEIVING

	YES	NO	N/A
All COC forms relinquished and received with signature/date?	X		
Reported sample IDs match those listed on COC?	X		
Reported analyses/methods match those listed on COC?	X		
Lab report includes results for every sample/analysis as listed on COC?	X		
Cooler Receipt form present?	X		
Cooler Receipt form filled in completely and signed?	X		
Temperature recorded from:	Not noted		
Recorded temperature between 2C and 6C?	X		

List of Anomalies/Recommended Actions

X No action required

ELECTRONIC DATA DELIVERABLES

	YES	NO	N/A
Are EDDs included with the data package?	X		
Does client require EDD check against hardcopy?		X	
Were all EDDs verified against hardcopy results?			X
Did all EDD results match reported results?			X
Were anomalies noted?			X
Was the project office/lab notified?			X

List of Anomalies/Recommended Actions

No action required

CLIENT NOTIFICATION

Add Memo Items of Missing Info./Corrections Below	Response Received? YES	NO
X There were no memo items for this project.		

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CASE NARRATIVES/LABORATORY REPORT FOOTNOTES

	YES	NO	N/A
Case Narrative present in data package?		X	
Are anomalies noted in the CN? (if yes, place an 'X' below)			X
Are anomalies noted in report footnotes? (if yes, place an 'X' below)		X	

THE FOLLOWING ANOMALIES WERE NOTED IN CASE NARRATIVES/LABORATORY REPORT FOOTNOTES:

Sample Delivery Group (SDG) Number:						
Missed analysis holding time						
Method blank contamination						
Instrument blank contamination						
LCS and/or LCS RPD failure						
MS/MSD and/or MS/MSD RPD failure						
Laboratory duplicate failure						
Analyte identification anomaly						
Correlation coefficient fails criteria in the ICAL						
Other ICAL anomalies						
% Recovery fails criteria in the CCV						
Other CCV anomalies						
Value exceeding the linear range of the instrument						
Result reported below the quantition limit						
Other notations (list below)						

List of Anomalies

X **No anomalies were noted in the case narrative(s)/laboratory report footnotes included with this project.**

HOLDING TIMES - DAYS

Enter Date as mo/day/year
DBE and DBA calculated automatically
Use following worksheet for analyses that have holding time requirements listed in hours.

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received	Preservation & Temp	Analysis Date	DBA	Comments
OC2-MW23D-W-5-196 (QC)	0603049-01	Water	15-Mar-06	16-Mar-06	3C, 4C	28-Mar-06	13	Perchlorate
OC2-MW15-W-0-198 (FD1)	0603049-03	Water	15-Mar-06	16-Mar-06	3C, 4C	28-Mar-06	13	Perchlorate
OC2-MW15-W-1-199 (FD1)	0603049-04	Water	15-Mar-06	16-Mar-06	3C, 4C	28-Mar-06	13	Perchlorate
OC2-MW13B-W-0-201	0603049-06	Water	15-Mar-06	16-Mar-06	3C, 4C	28-Mar-06	13	Perchlorate
OC2-MW12-W-0-203	0603049-08	Water	15-Mar-06	16-Mar-06	3C, 4C	29-Mar-06	14	Perchlorate

DBE = Days before extraction (extraction date - collection date)
DBA = Days before analysis (analysis date - collection date)

Recommended Actions

X	**No action required**

PRESERVATIVE & HOLDING TIME REQUIREMENTS BY METHOD - WATERS:

ANALYTE	METHOD	PRESERVATIVE	HOLDING TIME
PERCHLORATE	314.0	NONE	28 DAYS

METHOD BLANK ANALYSES

	YES	NO	N/A
Preparation Blank for each matrix?	X		
ICB analyzed after ICV?		X(5)	
CCB analyzed after each CCV?		X(5)	
Form Present?	X		
Did laboratory take appropriate corrective action for blank contamination greater than project acceptance criteria?			X

ACCEPTANCE CRITERIA REFERENCE: Per Client

ACCEPTANCE LEVEL FOR CONTAMINATION: < RL

LIST CONTAMINANTS DETECTED IN METHOD BLANKS
LIST CONTAMINANTS DETECTED IN CALIBRATION BLANKS (LEVEL IV ONLY)

Blank ID	Matrix	Analyte	Concen-tration	Units	10X	Comments
					0	None
					0	
					0	
					0	
					0	
					0	

LIST ALL METHOD BLANKS AND THEIR ASSOCIATED SAMPLES

Blank ID	Analyte/ Method	Associated Samples
B6C0170-BLK1	314.0	OC2-MW23D-W-5-196, OC2-MW15-W-0-198, OC2-MW15-W-1-199 and OC2-MW13B-W-0-201
B6C0187-BLK1	314.0	OC2-MW12-W-0-203

List of Anomalies/Recommended Actions

X **No action required**

(1) Sample results greater than 10X blank amount.
(2) Sample results non-detect.
(3) No associated samples.

(5) Calibration blanks were not analyzed for perchlorate analysis.

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FIELD QC BLANK ANALYSES

FIELD BLANK ANALYSES

	YES	NO	N/A
Field Blank analyzed?		X	
Form Present?			X

EQUIPMENT BLANK ANALYSES

	YES	NO	N/A
Equipment/Rinse Blank analyzed?		X	
Form Present?			X

LIST CONTAMINANTS DETECTED IN FIELD AND EQUIPMENT BLANKS

Blank ID	Laboratory ID	Matrix	Analyte	Concen-tration	Units	10X	Comments

List of Anomalies/Recommended Actions

☐ **No action required**

(1) Sample results greater than 10X blank amount.
(2) Sample results non-detect.
(3) No associated samples.

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Data Validation Worksheet
Perchlorate

LABORATORY CONTROL SAMPLES (LCS/LCSD)

	YES	NO	NA
Form Present?	X		
%R and RPD within limits?	X		
Spike list match project required list?	X		
Results agree with raw data? (Level IV only)	X		

% RECOVERY AND RPD CALCULATION CHECK
Enter analysis date (mo/day/year), spike amount, LCS result, and LCSD result.
% Recoveries and RPD are automatically calculated.

Analysis Date	Spike Analyte	Spike Conc	LCS Result	LCSD Results	LCS %R	LCSD %R	RPD	Agree with lab?	QC Batch Number
27-Mar-06	Perchlorate	10	10.5	NA	105.00%	NA	NA	YES	B6C0170
27-Mar-06	Perchlorate	10	10.1	NA	101.00%	NA	NA	YES	B6C0170
29-Mar-06	Perchlorate	10	9.88	NA	98.80%	NA	NA	YES	B6C0187
				NA	#DIV/0!	NA	NA		
				NA	#DIV/0!	NA	NA		
				NA	#DIV/0!	NA	NA		

ACCEPTANCE CRITERIA REFERENCE: EPA Region 9 Lab SOP 531R3

	%R	RPD	
ACCEPTANCE LIMITS:	85-115	NA	Perchlorate

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

LCS ID	Spike Analyte	% Recovery	RPD	Comments
				None

Recommended Actions

X **No action required**

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MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS(MS/MSD)

	YES	NO	NA
Form Present?	X		
%R and RPD within limits?	X		
Spike list match project required list?	X		
Results agree with raw data? (Level IV only)	X		

% RECOVERY AND RPD CALCULATION CHECK
Enter analysis date (mo/day/year), spike amount, sample result, MS result, and MSD result
IF sample result is ND, enter "0". % Recoveries and RPD are automatically calculated.

Analysis Date	Spiked Sample	Spike Analyte	Spike Conc	Sample Results	MS Result	MSD Results	MS %R	MSD %R	RPD	Agree with lab?	QC Batch Number
27-Mar-06	0603049-01	Perchlorate	10	3.83	13	12.9	91.70%	90.70%	0.77%	YES	B6C0170
							#DIV/0!	#DIV/0!	#DIV/0!		
							#DIV/0!	#DIV/0!	#DIV/0!		

ACCEPTANCE CRITERIA REFERENCE: EPA Region 9 Lab SOP 531R3

	%R	RPD	
ACCEPTANCE LIMITS:	80-120	15%	Perchlorate

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

Sample ID	Laboratory ID	Spike Analyte	% Recovery	RPD	Mx DF > or = 5X?	4X Rule Applies?	Comments
							None

Recommended Actions

- [X] **No action required**
- [ ] **Laboratory reported RPDs based on % recoveries; appropriate method is to calculate RPDs based on concentrations.**
- [ ] **Spike levels differed for MS and MSD.**
- [ ] **Qualify all samples in QC batch, unless otherwise noted in project plan.**

(1) 4X Rule.
(2) Dilution factor ≥ 5X.
(3) The parent sample was associated with an unrelated site.

LABORATORY DUPLICATE SAMPLE ANALYSIS

	YES	NO	N/A
Form Present?			X
One duplicate per every 20 samples?			X
All RPD within project limits?			X

List of Anomalies/Recommended Actions

☐ **No action required**

ENTER SAMPLE AND DUPLICATE RESULTS
% RPDs are automatically calculated.

Sample ID	Analyte	Sample Result	Duplicate Result	RPD	QC Batch Number
				#DIV/0!	
				#DIV/0!	
				#DIV/0!	
				#DIV/0!	

ACCEPTANCE CRITERIA REFERENCE:

ACCEPTANCE LIMITS: RPD

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

Sample ID	Instrument	Analyte	RPD	Comments	QC Batch Number

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FIELD DUPLICATES

	YES	NO
Are original/field duplicate pairs identifiable?	X	
%RPD within project acceptance limits?	X	

RPD CALCULATION CHECK

IF sample result is ND, enter "0". RPD is automatically calculated

Original Sample ID	Original Lab ID	Matrix	Analyte	Orig. Results	Duplicate Sample ID	Duplicate Lab ID	Dup. Results	RPD	Absolute Difference	RL	Meets Criteria?
OC2-MW15-W-0-198	0603049-03	Water	Perchlorate	3.9	OC2-MW15-W-1-199	0603049-04	4.2	-7.41%	0.3		YES
								#DIV/0!	0		
								#DIV/0!	0		
								#DIV/0!	0		
								#DIV/0!	0		
								#DIV/0!	0		

ACCEPTANCE CRITERIA REFERENCE: EPA Region 9 Lab SOP 531R3

ACCEPTANCE LIMITS:	20%
CRITERIA FOR AQUEOUS RESULTS AT OR NEAR THE RL	+/- 1 X RL
CRITERIA FOR SOIL RESULTS AT OR NEAR THE RL	+/- 2 X RL

LIST ALL RPD OUTSIDE PROJECT LIMITS (DO NOT INCLUDE VALUES < RL)

Original Sample ID	Original Lab ID	Analyte	RPD	Comments
				None

Recommended Actions

X **No action required**

NC: Not calculated. The absolute difference between the sample result and the duplicate sample result is less than the reporting limit.
N/A: Not analyzed
NA: Not applicable. Calculation of the relative percent difference between the sample result and the duplicate sample result is not applicable.

REPORTING LIMITS

	YES	NO
Are the project-specified reporting limits (RLs) met for all project samples?	X	
Are the RLs for all soil samples raised by dry weight correction?	NA	
Are the RLs raised due to sample dilutions?		X
Was dilution required due to matrix interference?		X
Was dilution required due to high levels of TARGET analytes?		X
Are any samples non-detect at a raised RL? (if so, list below)		X

REPORTING LIMITS REFERENCE: EPA Region 9 Lab SOP 531R3

If NO, then list:

Analyte	Samples Affected	Lab RL	Project RL	Comment
				None

ANALYTE LIST

	YES	NO
Does the reported target analyte list match the project required list?	X	

ANALYTE LIST REFERENCE: Chain of Custody

If NO, then list extra or missing analytes:

Analyte	Missing?	Extra?	Comment
			None

INITIAL CALIBRATION

	YES	NO	NA
Performed before sample analysis?	X		
Calibration for each matrix?	X		
Calibration for each instrument?	X		
Correlation Coefficient meets acceptance criteria?	X		

List of Anomalies/Recommended A

X **No action required**

ACCEPTANCE CRITERIA REFERENCE: EPA Region 9 Lab SOP 531R3

ACCEPTANCE LIMITS: CORR COEF (r) 0.995

LIST ALL CORRELATION COEFFICIENTS THAT DO NOT MEET ACCEPTANCE CRITERIA:

Calibration Date	Instrument ID	Matrix	Analyte	Corr Coefficient (r)	Comment
					None

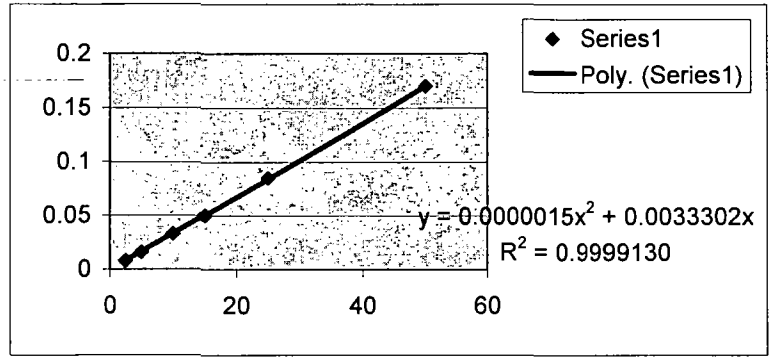
LIST ALL ICAL AND ASSOCIATED SAMPLES

Calibration Date	Instrument ID	Matrix	Analyte	Associated Samples
13-Jan-06	Dionex 600	Water	Perchlorate	0603049-01, -03, -04, -06, -08

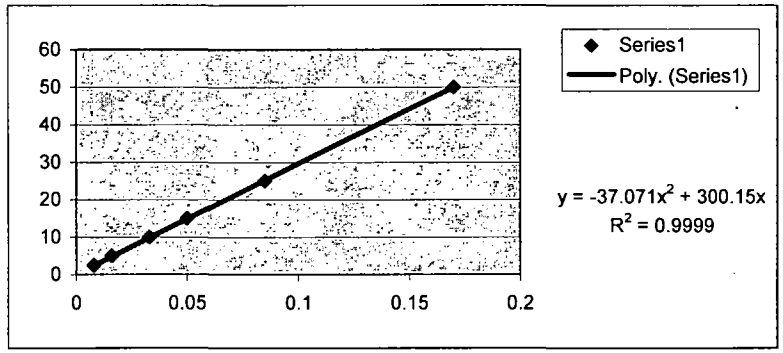
QUADRATIC CURVE CHECK

Enter Calibration date (mo/day/year), instrument ID, analyte, standard responses and standard concentrations
X = response std and Y = amt std.

Calibration Date	13-Jan-06				
Instrument ID	Dionex 600				
Analyte	Perchlorate			Y	X
Std Resp1	0.008	Std Conc1	2.5	2.5	0.008
Std Resp2	0.016	Std Conc2	5	5	0.016
Std Resp3	0.033	Std Conc3	10	10	0.033
Std Resp4	0.05	Std Conc4	15	15	0.05
Std Resp5	0.085	Std Conc5	25	25	0.085
Std Resp6	0.17	Std Conc6	50	50	0.17



Calibration Date	13-Jan-06				
Instrument ID	Dionex 600				
Analyte	Perchlorate			X	Y
Std Resp1	0.008	Std Conc1	2.5	0.008	2.5
Std Resp2	0.016	Std Conc2	5	0.016	5
Std Resp3	0.033	Std Conc3	10	0.033	10
Std Resp4	0.05	Std Conc4	15	0.05	15
Std Resp5	0.085	Std Conc5	25	0.085	25
Std Resp6	0.17	Std Conc6	50	0.17	50



	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

LABORATORY FORCED CURVES THROUGH ZERO.
THE CURVE EQUATION ON THE LEFT MATCHES THAT REPORTED BY THE LAB; HOWEVER, THE CURVE EQUATION ON THE RIGHT WILL PRODUCE THE RESULTS FOR PERCHLORATE REPORTED BY THE LAB.

DAILY CALIBRATION CHECK - PERCHLORATE

RUN LOGS

	YES	NO	N/A
Run logs present in data package?	X		
All samples located on run logs?	X		
All dilutions located on run logs?			X
Are anomalies noted by the analyst?		X	

METHOD AND INSTRUMENT PERFORMANCE CHECK STANDARDS

	YES	NO	N/A
QCS standard analyzed?	X(1)		
QCS % recovery within 90%-110% of actual?	X		
IPC standard analyzed?	X		
IPC standard conductance within +/-10% of original?	X		
IPC standard perchlorate recovery between 80%-120%?	X		
ICV standard analyzed?	X(2)		
ICV standard perchlorate recovery between 75%-125%?	X		
CCV standards analyzed?	X		
CCV standards analyzed every 10 samples?	X		
CCV standard perchlorate recoveries between 85%-115%?	X		
Conductance of all samples recorded?	X		
Conductance of all samples < MCT?	X(3)		
List MCT value	3220 (3)		

INITIAL AND CONTINUING CALIBRATION VERIFICATION

	YES	NO	N/A
Performed before sample analysis?	X		
Performed for each day of analysis?	X		
Performed for each instrument?	X		
Performed for every 10 samples?	X		
Raw data agree with forms? (Level IV only)	X		

List of Anomalies/Recommended Actions

X **No action required**

(1) LABORATORY CALLS THIS STANDARD SCV; IT WAS ANALYZED DIRECTLY AFTER THE ICAL.

(2) LABORATORY CALLS THIS STANDARD QLS.

(3) THE IPC WAS A 10 ug/L PERCHLORATE STANDARD CONTAINING ANIONS AT 400 mg/L. THE CONDUCTIVITY OF THE IPC SOLUTION WAS 3220 umhos/cm. ALL SAMPLE CONDUCTIVITIES WERE WELL BELOW THE 3220 umhos/cm MATRIX CONDUCTIVITY THRESHOLD (MCT).

Definitions:
QCS - Second source standard analyzed after an initial calibration. 90%-110%
MCT - Matrix conductivity threshold. Standard with high conductance contains perchlorate at RL (2 ppb)
IPC - Instrument performance check - check of MCT
ICV - Initial low level continuing check standard at RL
CCV - mid and high level check standards analyzed every 10 samples

ACCEPTANCE CRITERIA REFERENCE: EPA Region 9 Lab SOP 531R3

ACCEPTANCE LIMITS: %R 85-115

LIST ALL %RECOVERY THAT DO NOT MEET ACCEPTANCE CRITERIA:

Calibration Date	Time	Instrument ID	Analyte	% Recovery	Comments
					None

CONTINUED

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DAILY CALIBRATION CHECK - PERCHLORATE [CONTINUED]

LIST ALL PRECEEDING ICV/CCV AND ASSOCIATED SAMPLES

Calibration Date	Time	Instrument ID	Matrix	Analyte	Associated Samples
27-Mar-06	2234	Dionex 600	Water	Perchlorate	0603049-01
28-Mar-06	0151	Dionex 600	Water	Perchlorate	0603049-03, -04, -06
28-Mar-06	0508	Dionex 600	Water	Perchlorate	Closing
29-Mar-06	1558	Dionex 600	Water	Perchlorate	0603049-08
29-Mar-06	1915	Dionex 600	Water	Perchlorate	Closing

CONTINUING CALIBRATION - QUADRATIC CURVE

CCV (ng) = b+(m1*Ax)+(m2*Ax^2)
A_x = Area of compound **m1 = first coefficient from quadratic curve**
b = intercept from linear curve **m2 = second coefficient from quadratic curve**

Date:			**13-Mar-06**
Time:			**20:07**
Instrument ID:			**Dionex 600**
Compound:			**Perchlorate**
AMOUNT-CCV			**QCS**
A_x=	0.066		
b=	0	19.6484187	
m1=	300.15		
m2=	-37.071		
	True Amt	**20**	
	%D	**98.24%**	

Date:			**27-Mar-06**
Time:			**12:25**
Instrument ID:			**Dionex 600**
Compound:			**Perchlorate**
AMOUNT-CCV			**IPC**
A_x=	0.032		
b=	0	9.5668393	
m1=	300.15		
m2=	-37.071		
	True Amt	**10**	
	%D	**95.67%**	

Date:			**27-Mar-06**
Time:			**13:01**
Instrument ID:			**Dionex 600**
Compound:			**Perchlorate**
AMOUNT-CCV			**ICV(QL)**
A_x=	0.007		
b=	0	2.09923352	
m1=	300.15		
m2=	-37.071		
	True Amt	**2**	
	%D	**104.96%**	

Date:			**27-Mar-06**
Time:			**22:34**
Instrument ID:			**Dionex 600**
Compound:			**Perchlorate**
AMOUNT-CCV			**CCV**
A_x=	0.086		
b=	0	25.5387229	
m1=	300.15		
m2=	-37.071		
	True Amt	**25**	
	%D	**102.15%**	

Date:			**28-Mar-06**
Time:			**1:51**
Instrument ID:			**Dionex 600**
Compound:			**Perchlorate**
AMOUNT-CCV			**CCV**
A_x=	0.084		
b=	0	24.951027	
m1=	300.15		
m2=	-37.071		
	True Amt	**25**	
	%D	**99.80%**	

Date:			**28-Mar-06**
Time:			**5:08**
Instrument ID:			**Dionex 600**
Compound:			**Perchlorate**
AMOUNT-CCV			**CCV**
A_x=	0.084		
b=	0	24.951027	
m1=	300.15		
m2=	-37.071		
	True Amt	**25**	
	%D	**99.80%**	

	YES	**NO**
CALCULATED VALUES MATCH REPORTED VALUES?	**X***	

	YES	**NO**
AMOUNTS INJECTED CONSISTENT THROUGHOUT ANALYTICAL SEQUENCE?	**X**	

*** RESULTS MATCH TO +/- 0.1 ug/L.**

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CONTINUING CALIBRATION - QUADRATIC CURVE

CCV (ng) = b+(m1*Ax)+(m2*Ax^2)
A_x = Area of compound **m1 = first coefficient from quadratic curve**
b = intercept from linear curve **m2 = second coefficient from quadratic curve**

Date:		**13-Mar-06**
Time:		**20:07**
Instrument ID:		**Dionex 600**
Compound:		**Perchlorate**
AMOUNT-CCV		**QCS**
A_x=	0.066	
b=	0	19.6484187
m1=	300.15	
m2=	-37.071	
	True Amt	**20**
	%D	**98.24%**

Date:		**29-Mar-06**
Time:		**15:40**
Instrument ID:		**Dionex 600**
Compound:		**Perchlorate**
AMOUNT-CCV		**IPC**
A_x=	0.034	
b=	0	10.1622459
m1=	300.15	
m2=	-37.071	
	True Amt	**10**
	%D	**101.62%**

Date:		**29-Mar-06**
Time:		**17:10**
Instrument ID:		**Dionex 600**
Compound:		**Perchlorate**
AMOUNT-CCV		**ICV(QL)**
A_x=	0.006	
b=	0	1.79956544
m1=	300.15	
m2=	-37.071	
	True Amt	**2**
	%D	**89.98%**

Date:		**29-Mar-06**
Time:		**15:58**
Instrument ID:		**Dionex 600**
Compound:		**Perchlorate**
AMOUNT-CCV		**CCV**
A_x=	0.081	
b=	0	24.0689272
m1=	300.15	
m2=	-37.071	
	True Amt	**25**
	%D	**96.28%**

Date:		**29-Mar-06**
Time:		**19:15**
Instrument ID:		**Dionex 600**
Compound:		**Perchlorate**
AMOUNT-CCV		**CCV**
A_x=	0.082	
b=	0	24.3630346
m1=	300.15	
m2=	-37.071	
	True Amt	**25**
	%D	**97.45%**

	YES	**NO**
CALCULATED VALUES MATCH REPORTED VALUES?	**X***	

	YES	**NO**
AMOUNTS INJECTED CONSISTENT THROUGHOUT ANALYTICAL SEQUENCE?	**X**	

*** RESULTS MATCH TO +/- 0.1 ug/L.**

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MDL STUDY

	YES	NO	N/A
MDL values present in the package?		X	
Is MDL study provided?		X	
Study performed within 1 year of sample analysis?			X
MDLs support laboratory reporting limits? (If no, list)			X

Analyte	Comments
	RL < 3X MDL
	RL < 3X MDL
	RL < 3X MDL
	RL < 3X MDL

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SAMPLE CALCULATION WORKSHEET

CALCULATIONS:

ug/L=(b+(m1*Ax)+(m2*Ax^2))*Vf*Df*GPC/(Vi*Vo)

Sample ID: OC2-MW13B-W-0-201
Laboratory ID: 0603049-06
Analyte: Perchlorate **REPORTED VALUE: 3.2 ug/L**

Ax=	0.011	**3.297164**	Area cmpd in sample
b=	0		Coefficient b from curve
m1=	300.15		Coefficient m1 from curve
m2=	-37.071		Coefficient m2 from curve
Vf=	1		Volume of extract, in uL
Df=	1		Dilution factor
GPC=	1		1 if GPC not done, 2 if GPC done
Vi=	1		Volume of extract injected, in uL
Ws/Vw=	1		Volume of sample, in mL (or Wt in g)
D=	1		Dry-weight (1 if not taken into acct)

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X*	

*** RESULTS MATCH TO +/- 0.1 ug/L.**

IDENTIFICATION AND QUANTITATION

For Level IV calculate the results of all detects for project samples.
Use the worksheet labeled "calculation."

☐ **Qualifications from QuikVal reports are included herein (reason codes 001, 009 and 010)**
☐ **Qualifications were not indicated in QuikVal reports.**

List all samples requiring qualification here:

Sample ID	Lab ID	Analyte	Result	Lab Qualifier	Calc Check	Qualifier	Reason Code
					NO QUALIFICATION		

☒ **All Level IV sample results were re-calculated and verified to be correctly reported by the laboratory.**
*** RESULTS MATCH TO +/- 0.1 ug/L.**

CONTINUED

QUALIFIED DATA CONTINUED

Qualifiers

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. A minus sign (-) indicates the numerical value has a low bias. A plus sign (+) indicates the numerical value has a high bias.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified. Rejected results are not usable for any purpose.

DataVal Reason Codes

001 Exceeded holding time.
002 Blank contamination.
003 Associated initial calibration showed elevated %RSD for compound.
004 Correlation coefficient < 0.995.
005 Average relative response factor < 0.05.
006 Associated continuing calibration showed elevated %D for compound.
007 Relative response factor < 0.05.
008 Surrogate recovery was outside limits.
009 Laboratory control sample recovery exceeded acceptance criteria.
010 Matrix spike recovery exceeded acceptance criteria.
011 The area of the internal standard exceeded acceptance criteria.
012 Retention time exceeded criteria for this compound.
013 Mass spectrum did not match the reference spectrum.
014 Tentatively identified compound (TIC).
015 Value exceeded the linear range of the instrument and was not re-analyzed.
016 Compounds/components co-elute.
017 Results reported below the quantitation limit.
018 Laboratory duplicate relative percent differences (RPD) outside acceptance criteria.
019 Field duplicate RPD outside acceptance criteria.
020 Percent difference between columns exceeded 25%.
021 Laboratory control sample RPD outside acceptance criteria.
022 Matrix spike sample RPD outside acceptance criteria.
023 Serial dilution percent difference outside acceptance criteria.
024 Retention time exceeded established window.
025 ICP Interference Check Sample had percent recoveries outside the 80%-120% criteria.
026 CRI/CRA (detection limit standard) failed acceptance criteria.
100 Other.

DataVal, Inc.

TPO: [ ]FYI [ ]Attention [ ]Action Region 9

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. R06S31 LABORATORY USEPA Region 9 Laboratory

SDG NO. 06075B SITE NAME Omega Chemical OU-2 March 2006 Sampling

SOW N/A REVIEW COMPLETION DATE 10/2/06

REVIEWER'S NAME Lisa Norosky/Agnieszka Jankowski, DataVal, Inc.

NO. OF SAMPLES 5 WATER ___ SOIL ___ Other

Perchlorate (314.0)

1. PRESERVATION AND HOLDING TIMES	O
2. CALIBRATION	O
3. BLANKS	O
4. ICP INTERFERENCE CHECK SAMPLE (ICS)	N/A
5. LABORATORY CONTROL SAMPLE (LCS)	O
6. DUPLICATE ANALYSIS	N/A
7. MATRIX SPIKE ANALYSIS	O
8. METHOD OF STANDARD ADDITION (MSA)	N/A
9. ICP SERIAL DILUTION	N/A
10. SAMPLE QUANTITATION	O
11. SAMPLE VERIFICATION	O
12. GFAA ANALYTICAL SPIKE	N/A
13. OVERALL ASSESSMENT	O

O = Data have no problems or problems that do not affect data quality.
X = Data are qualified due to minor problems.
M = Data are qualified due to major problems.
Z = Data are unacceptable.
N/A = Not Applicable.

TPO ACTION:

None.

TPO ATTENTION:

None.

AREAS OF CONCERN:

None.